

**IN THE CLAIMS:**

Please cancel pending claims 48-50, 53, 56-58, 60-64 and 69 without prejudice and add the following new claims: *New matter*

70. (New) A method for cleaning a previously substantially uncleaned object comprising:

a) preparing a liquid cleaning composition comprising 65%-99% by weight water and at least one organic compound having lipophilic and hydrophilic groups, wherein the concentration of the at least one organic compound is greater than the solubility of the at least one organic compound in water, and wherein the at least one organic compound has the properties of:

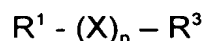
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- i) being completely soluble in water at a different concentration and at a temperature that is different from a cleaning temperature, so as to form an optically clear liquid at the different concentration and temperature, and
  - ii) highly efficiently dissolving and removing hydrophobic contaminants from the previously substantially uncleaned object,

b) adjusting the temperature of the liquid cleaning composition to the cleaning temperature, and

c) contacting the previously substantially uncleaned object with the liquid cleaning composition at the cleaning temperature while maintaining the liquid cleaning composition in a state of an emulsion, in which a plurality of organic-rich droplets are suspended in a continuous aqueous phase, for at least a portion of the time that the

liquid cleaning composition contacts the object by performing at least one of (i) agitating the liquid cleaning composition and (ii) applying ultrasound to the liquid cleaning composition, wherein both the organic-rich droplets and the continuous aqueous phase contact the object and both hydrophilic and hydrophobic contaminants are highly effectively removed from the object by the liquid cleaning composition.

71. (New) A method as in claim 70, wherein the at least one organic compound has the following structure:



wherein  $R^1$  and  $R^3$  are each independently selected from H; methyl; ethyl; linear or branched, saturated or unsaturated,  $C_3$  to  $C_{18}$  alkyl groups, in which one or more nonadjacent  $-CH_2-$  may be replaced by  $-O-$ ; amino, in which one or more hydrogens may be replaced by  $C_1$  to  $C_8$  alkyl groups, or a saturated or unsaturated cyclic  $C_3$  to  $C_6$  group, in which one or more nonadjacent  $-CH_2-$  groups may be replaced by  $-O-$ ; hydroxy; and linear or branched, saturated or unsaturated,  $C_1$  to  $C_8$  alkoxy;

X is selected from the group consisting of  $-O-$ ;  $-C(=O)-$ ;  $-C(=O)-O-$ ;  $-NH-$ , in which the hydrogen may be replaced by a linear or branched  $C_1$  to  $C_8$  alkyl group;  $-N(-OH)-$ ; linear or branched  $C_1$  to  $C_8$  alkylene, in which one or more nonadjacent  $-CH_2-$  groups may be replaced by  $-O-$ ; and

n is selected from a positive integer.

72. (New) A method as in claim 71, wherein  $R^1$  and  $R^3$  are independently selected from hydrogen, methyl, ethyl, n-propyl, i-propyl, n-butyl, sec-butyl, i-butyl, tert-butyl, n-pentyl, n-hexyl, n-octyl, furfuryl-2, tetrahydrofurfuryl-2, hydroxy, methoxy, ethoxy and

propoxy.

73. (New) A method as in claim 72, wherein X is selected from -O-; -C(=O)-; -C(=O)-O-; -NH-, in which the hydrogen may be replaced by a C<sub>1</sub> to C<sub>8</sub> alkyl group; -N(-OH)-; ethyleneoxy and propyleneoxy.

74. (New) A method as in claim 70, wherein the cleaning temperature is between about 40-60°C.

75. (New) A method as in claim 70, wherein the liquid cleaning composition is an azeotrope.

LI 76. (New) A method as in claim 70, wherein the liquid cleaning composition has the further property that the at least one organic compound completely dissolves in the water when the temperature of the liquid cleaning composition is lower than the cleaning temperature.

77. (New) A method as in claim 70, wherein the water comprises at least 75% by weight of the liquid cleaning composition.

78. (New) A method as in claim 70, wherein the water comprises at least 85% by weight of the liquid cleaning composition.

79. (New) A method as in claim 70, wherein the liquid cleaning composition further comprises a corrosion inhibitor.

80. (New) A method as in claim 70, wherein the at least one organic compound comprises a glycol ether.

81. (New) A method as in claim 70, wherein the at least one organic compound comprises dipropylene glycol mono-n-propyl ether.

82. (New) A method as in claim 70, wherein the liquid cleaning composition further comprises at least one compound selected from the group consisting of an amine compound, an N-heterocyclic compound and an organic acid.

83. (New) A method for cleaning a previously substantially uncleaned object having hydrophobic and hydrophilic contaminants adhered thereto, the method comprising:

L1 a) contacting the previously substantially uncleaned object with a liquid cleaning composition comprising 65%-99% by weight water and at least one organic compound having lipophilic and hydrophilic groups, wherein the concentration of the at least one organic compound is greater than the solubility of the at least one organic compound in water, such that the liquid cleaning composition is a two-phase solution at a cleaning temperature, and wherein the liquid cleaning composition has the properties of:

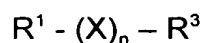
i) the at least one organic compound being completely soluble in water at a different concentration and at a temperature that is different from the cleaning temperature, so as to form an optically clear liquid at the different concentration and temperature, and

ii) highly efficiently dissolving and removing both hydrophobic and hydrophilic contaminants from the object, and

b) maintaining the liquid cleaning composition in the state of an emulsion, in which a plurality of organic-rich droplets are suspended in a continuous aqueous phase, for at least a portion of the time that the liquid cleaning composition contacts the object, wherein both the organic-rich droplets and the continuous aqueous phase contact the object and both hydrophilic and hydrophobic contaminants are highly effectively

removed from the object by the liquid cleaning composition.

84. (New) A method as in claim 83, wherein the at least one organic compound has the following structure:



wherein  $R^1$  and  $R^3$  are each independently selected from H; methyl; ethyl; linear or branched, saturated or unsaturated,  $C_3$  to  $C_{18}$  alkyl groups, in which one or more nonadjacent  $-CH_2-$  may be replaced by  $-O-$ ; amino, in which one or more hydrogens may be replaced by  $C_1$  to  $C_8$  alkyl groups, or a saturated or unsaturated cyclic  $C_3$  to  $C_6$  group, in which one or more nonadjacent  $-CH_2-$  groups may be replaced by  $-O-$ ; hydroxy; and linear or branched, saturated or unsaturated,  $C_1$  to  $C_8$  alkoxy;

X is selected from the group consisting of  $-O-$ ;  $-C(=O)-$ ;  $-C(=O)-O-$ ;  $-NH-$ , in which the hydrogen may be replaced by a linear or branched  $C_1$  to  $C_8$  alkyl group;  $-N(-OH)-$ ; linear or branched  $C_1$  to  $C_8$  alkylene, in which one or more nonadjacent  $-CH_2-$  groups may be replaced by  $-O-$ ; and

n is selected from a positive integer.

85. (New) A method as in claim 84, wherein  $R^1$  and  $R^3$  are independently selected from hydrogen, methyl, ethyl, n-propyl, i-propyl, n-butyl, sec-butyl, i-butyl, tert-butyl, n-pentyl, n-hexyl, n-octyl, furfuryl-2, tetrahydrofurfuryl-2, hydroxy, methoxy, ethoxy and propoxy.

86. (New) A method as in claim 85, wherein X is selected from  $-O-$ ;  $-C(=O)-$ ;  $-C(=O)-O-$ ;  $-NH-$ , in which the hydrogen may be replaced by a  $C_1$  to  $C_8$  alkyl group;  $-N(-OH)-$ ; ethyleneoxy and propyleneoxy.

87. (New) A method as in claim 83, wherein the cleaning temperature is between about 40-60°C.

88. (New) A method as in claim 83, wherein the liquid cleaning composition is maintained in the state of a plurality of organic-rich droplets suspended in a continuous aqueous phase by at least one of (i) agitating the liquid cleaning composition and (ii) applying ultrasound to the liquid cleaning composition.

89. (New) A method as in claim 83, wherein the liquid cleaning composition is an azeotrope.

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90. (New) A method as in claim 83, wherein the liquid cleaning composition has the further property that the at least one organic compound completely dissolves in the water when the temperature of the liquid cleaning composition is lower than the cleaning temperature.

91. (New) A method as in claim 83, wherein the water comprises at least 75% by weight of the liquid cleaning composition.

92. (New) A method as in claim 83, wherein the water comprises at least 85% by weight of the liquid cleaning composition.

93. (New) A method as in claim 83, wherein the liquid cleaning composition further comprises a corrosion inhibitor.

94. (New) A method as in claim 83, wherein the at least one organic compound comprises a glycol ether.

95. (New) A method as in claim 83, wherein the at least one organic compound comprises dipropyleneglycol mono-n-propyl ether.

96. (New) A method as in claim 83, wherein the liquid cleaning composition further comprises at least one additional compound selected from the group consisting of an amine compound, an N-heterocyclic compound and an organic acid.

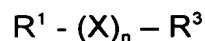
97. (New) A method for cleaning an object comprising:

contacting the object with a liquid cleaning composition comprising 65%-99% by weight water and at least one organic compound having lipophilic and hydrophilic groups, wherein the concentration of the at least one organic compound is greater than the solubility of the at least one organic compound in water, such that the liquid cleaning composition is a two-phase solution at a cleaning temperature, and

maintaining the liquid cleaning composition in the state of an emulsion, in which a plurality of organic-rich droplets are suspended in a continuous aqueous phase, for at least a portion of the time that the liquid cleaning composition contacts the object at the cleaning temperature, wherein both the organic-rich droplets and the continuous aqueous phase contact the object and both hydrophilic and hydrophobic contaminants are highly effectively removed from the object by the liquid cleaning composition.

98. (New) A method as in claim 97, wherein the liquid cleaning composition is maintained in the state of a plurality of organic-rich droplets suspended in a continuous aqueous phase by at least one of (i) agitating the liquid cleaning composition and (ii) applying ultrasound to the liquid cleaning composition.

99. (New) A method as in claim 98, wherein the at least one organic compound has the structure:



wherein R<sup>1</sup> and R<sup>3</sup> are each independently selected from H; methyl; ethyl; linear or branched, saturated or unsaturated, C<sub>3</sub> to C<sub>18</sub> alkyl groups, in which one or more nonadjacent -CH<sub>2</sub>- may be replaced by -O-; amino, in which one or more hydrogens may be replaced by C<sub>1</sub> to C<sub>8</sub> alkyl groups, or a saturated or unsaturated cyclic C<sub>3</sub> to C<sub>6</sub> group, in which one or more nonadjacent -CH<sub>2</sub>- groups may be replaced by -O-; hydroxy; and linear or branched, saturated or unsaturated, C<sub>1</sub> to C<sub>8</sub> alkoxy;

X is selected from the group consisting of -O-; -C(=O)-; -C(=O)-O-; -NH-, in which the hydrogen may be replaced by a linear or branched C<sub>1</sub> to C<sub>8</sub> alkyl group; -N(-OH)-; linear or branched C<sub>1</sub> to C<sub>8</sub> alkylene, in which one or more nonadjacent -CH<sub>2</sub>- groups may be replaced by -O-; and

n is selected from a positive integer.

100. (New) A method as in claim 99, wherein R<sup>1</sup> and R<sup>3</sup> are independently selected from hydrogen, methyl, ethyl, n-propyl, i-propyl, n-butyl, sec-butyl, i-butyl, tert-butyl, n-pentyl, n-hexyl, n-octyl, furfuryl-2, tetrahydrofurfuryl-2, hydroxy, methoxy, ethoxy and propoxy.

101. (New) A method as in claim 100, wherein X is selected from -O-; -C(=O)-; -C(=O)-O-; -NH-, in which the hydrogen may be replaced by a C<sub>1</sub> to C<sub>8</sub> alkyl group; -N(-OH)-; ethyleneoxy and propyleneoxy.

102. (New) A method as in claim 101, wherein the water comprises at least 75% by weight of the liquid cleaning composition.

103. (New) A method as in claim 102, wherein the water comprises at least 85% by weight of the liquid cleaning composition.



104. (New) A method as in claim 101, wherein the liquid cleaning composition further comprises a corrosion inhibitor.

105. (New) A method as in claim 104, wherein the at least one organic compound comprises a glycol ether.

106. (New) A method as in claim 105, wherein the liquid cleaning composition further comprises at least one additional compound selected from the group consisting of an amine compound, an N-heterocyclic compound and an organic acid.

107. (New) A method as in claim 106, wherein the at least one organic compound comprises dipropyleneglycol mono-n-propyl ether.

cl 108. (New) A method as in claim 97, wherein the at least one organic compound is selected from the group consisting of propyleneglycol ether; dipropyleneglycolmonoethylether; tripropyleneglycolmonomethylether; 3-methoxy-3-methylbutanol; furfuryl alcohol; tetrahydrofurfurylalcohol; 1-aminobutanol-2; monoisopropanolamine; 2-amino-2-methylpropanol-1; 2-amino-a-methylpropanediol-1,3; 3-(aminomethyl-)pyridine; ethanolamine; furfurylamine; methyl lactate; isopropyl lactate; aminoacetaldehydedimethylacetal; 4-aminomorpholine; 1-methylimidazole; 1,2-dimethylimidazole; 1-vinylimidazole; 1,4-diazabicyclo[2.2.2]octane (DABCO); 1,5-diazabicyclo[4.3.0]non-5-ene; and 1,8-diazabicyclo[5.4.0]undec-7-ene.

109. (New) A method as in claim 108, wherein the liquid cleaning composition further comprises at least one additional compound selected from the group consisting of an amine compound, an N-heterocyclic compound and an organic acid.

110. (New) A method as in claim 109, wherein the at least one organic compound comprises between 3 and 25% by weight of the liquid cleaning composition.

L/ 111. (New) A method as in claim 110, wherein the at least one organic compound comprises between 4 and 15% by weight of the liquid cleaning composition.

112. (New) A method as in claim 97, wherein the at least one organic compound comprises between 3 and 25% by weight of the liquid cleaning composition.

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